REMARKS

Claims 1-10 and 12-20 are pending. Claims 16-19 have been withdrawn from consideration. Reconsideration of the application is requested.

§ 102 Rejections

Claims 1, 4-6, 8, 12-15, and 20 stand rejected under 35 USC § 102(b) as purportedly being anticipated by Williams et al. (US 5,741,542).

The method of Claim 1 requires the following steps and refers to four compositions, (highlighted in **bold underline** occurring in various stages of the method.

Claim 1: Method of preparing a pressure-sensitive adhesive comprising the steps of:

(i) providing **an essentially solvent-free mixture** comprising one or more free radically polymerizable monomers having one ethylenically unsaturated group and at least one free-radical polymerization initiator, wherein the essentially solvent-free mixture comprises less than about 20 weight percent solvent,

(ii) partially polymerizing said mixture to provide **a partially polymerized mixture** exhibiting a Brookfield viscosity of between 1,000 and 125,000 mPa·s at 20 °C and a degree of conversion of monomers to polymer of between 30 – 60 wt. % with respect to the initial mass of the monomers prior to polymerization,

(iii) adding one or more free-radical radiation polymerization initiators to the partially polymerized mixture to provide **a radiation-curable precursor**,

(iv) applying the radiation-curable precursor to a substrate, and

(v) further polymerizing the radiation-curable precursor by subjecting it to actinic irradiation to provide said **pressure-sensitive adhesive**, wherein the further polymerization of the radiation-curable precursor is performed in a non-inert atmosphere.

Properties of the four compositions referred to in claim 1 are summarized in the table below.

Composition	Description
essentially solvent-free mixture	• Comprises free radically polymerizable monomers and at least one free-radical polymerization initiator • Comprises less than about 20 weight percent solvent
partially polymerized mixture	• Result of the partial polymerization of the **essentially solvent-free mixture** • Brookfield viscosity of between 1,000 and 125,000 mPa·s at 20 °C • Degree of conversion of monomers to polymer of between 30-60 wt.% with respect to the initial mass of the monomers
radiation-curable precursor	• Provided by adding one or more free-radical radiation polymerization initiators to the **partially polymerized mixture** • Applied to a substrate in step (iv)
pressure-sensitive adhesive	• Results from the further polymerizing the **radiation-curable precursor** by subjecting it to actinic irradiation in a non-inert atmosphere.

If the required properties of each distinct composition of the present claims are understood, the differences between the current claims and the disclosure of Williams et al. are readily apparent.

Partially Polymerized Mixture

Citing col. 9, lines 10-47, the Patent Office asserts that Williams et al. describe a partially polymerized mixture which has a Brookfield viscosity of 1500 cps and about 50 % conversion. (See Office Action, paragraph 6.)

Applicants respectfully submit that the Patent Office has mistakenly combined features of two distinct compositions of Williams et al. First, Applicants note that col. 18, lines 15-23 (which the Patent Office cited for its purported description of an essentially solvent free mixture) recites a Brookfield viscosity of about 1500 cps; however, no degree of conversion is recited for this "Syrup X." Similarly, col. 6, lines 53-64 describe prepolymerizing the polymerizable mixture to about 1500 cps. However, again, no degree of conversion is reported. As discussed in the present application, preopolmerizng a syrup to increase the viscosity was known, but only at low degrees of conversion (i.e., 5-10%). (See page 1, line 25-33.)

Second, according to Williams et al., a composition having a 50 % degree of conversion arises only after a monomeric mixture or prepolymerized syrup is applied to a substrate and

cured. (See col. 9,lines 37-47.) In fact, Williams et al. describe a wide range of potential viscosities after the syrup has been applied to a substrate and cured, i.e., 5-100%. (See col. 9, lines 4-12.)

Thus, one cannot assume that the syrup having a viscosity of 1500 cps before coating also has a degree of conversion of 50%. Rather, these are clearly features of two distinct compositions, one arising before coating, and one arising only after coating and curing.

In contrast, the partially polymerized mixture of the present claims, having a Brookfield viscosity of between 1,000 and 125,000 mPa·s at 20 °C and a degree of conversion of between 30-60 wt.% is itself applied to a substrate, after the addition of one or more free-radical radiation polymerization initiators to form the radiation-curable precursor.

Finally, still referring to the composition having about 50% conversion and citing Example 1, the Patent Office asserts that Williams et al. describe applying the precursor to a web. However, as is discussed above, it is clear that the Patent Office has failed to show how Williams et al. describe a precursor having 50 % conversion **prior** to being applied to a web and cured.

In summary, present claim 1 requires a partially polymerized mixture having a Brookfield viscosity of between 1,000 and 125,000 mPa·s at 20 °C, and a degree of conversion of monomers to polymer of between 30-60 wt.% with respect to the initial mass of the monomers. As further required by claim 1, this composition is subsequently applied to substrate after addition of one or more free-radical radiation polymerization initiators. In contrast, although Williams et al. may describe a partially polymerized mixture having a Brookfield viscosity 1500 cps, it is only **after** this mixture is applied to a substrate and thermally cured that it may have a 50 % degree of conversion.

Polymerizing the Radiation Curable Precursor

Step (v) of claim 1 requires polymerizing the **radiation-curable precursor** by subjecting it to actinic irradiation. As set forth in claim 1, the radiation curable precursor comprises one or more free-radical radiation polymerization initiators added to the partially polymerized mixture.

Citing col. 10, lines 57-67, the Patent Office asserts that Williams et al. describe subjecting such a precursor to irradiation. However, Applicants respectfully submit that the

passage cited by the Patent Office refers only to post treating an already cured adhesive, not a radiation-curable precursor as required by claim 1.

In view of the above, it clear that the Patent Office has failed to show how Williams et al. identically describe each element of the claimed invention. For at least these reasons, the rejection of claim 1 under 35 USC § 102(b) as being anticipated by Williams et al. is unwarranted and should be withdrawn. Similarly, each of claims 4-6, 8, 12-15, and 20 depend from claim 1 and add patentable features thereto. Thus, the rejections of these claims under 35 USC § 102(b) as purportedly being anticipated by Williams et al. are unwarranted and should be withdrawn as well.

Claims 1, 7-8, 13, and 15 stand rejected under 35 USC § 102(e) as purportedly being anticipated by Graichen et al. (EP 1375617 A1).

Again, if the required properties of each distinct composition of the present claims are understood, the differences between the current claims and the disclosure of Graichen et al. are readily apparent.

According to the Patent Office, Graichen et al. describe "partially polymerizing the mixture to a provide a mixture having viscosity of 1300-1500 (*sic*, 15,000) mPa*s and a degree of conversion of 30-80% (abstract and 0090), adding one or more initiators to the mixture [0079], the mixture is then applied to the substrate [0090], then it is subjected to actinic radiation [0091] ..." (Office Action, paragraph 7.)

As with Williams et al., the Patent Office has failed to identify any connection between the reported viscosity and the reported degree of conversion. According to the abstract and paragraph [0090] it is the precursor that has a viscosity of 1300-15,000. The Patent Office has failed to show how Graichen provides any information on the degree of conversion of this precursor. [0090]. Further, according to [0090], this precursor is first applied to a substrate and subsequently partially cured to about 30% to 80%. This clearly implies that the applied precursor had a degree of conversion of less than 30%, contrary to the requirements of the present claims.

In summary, the present invention requires a partially cured precursor having Brookfield viscosity of between 1,000 and 125,000 mPa·s at 20 °C and a degree of conversion of monomers to polymer of between 30-60 wt.% with respect to the initial mass of the monomers **prior** to being applied to a substrate. In contrast, at best, the Patent Office has shown how Graichen et al.

describe a composition having a degree of conversion of about 30% to 80% only **after** being coated on a substrate and cured.

For at least these reasons, the Patent Office has failed to show how Graichen et al. identically disclose each element of the claimed invention. Thus, the rejections of independent claim 1 and dependent claims 7-8, 13, and 15 are unwarranted and should be withdrawn.

§ 103 Rejections

Claims 9 and 10 stand rejected under 35 USC § 103(a) as purportedly being unpatentable over Williams et al. or Graichen et al.

According to the Patent Office, the polydispersity values of Williams et al. and Graichen et al. would fall within the claimed values.

While disagreeing with this analysis, Applicants respectfully submit that this argument is moot as it fails to overcome the deficiencies of Williams et al. and Graichen et al., as set forth above. For at least these reasons, claims 9 and 10, which depend from claim 1 are patentable, and their rejection under 35 USC § 103(a) should be withdrawn.

Claims 1-15 stand rejected under 35 USC § 103(a) as purportedly being unpatentable over Ellis (US 5,637,646).

Applicants addressed this rejection in detail in their response to the preceding office action. In reply, the Patent Office failed to rebut these arguments asserting instead that they were moot in view of new rejections. (See Office Action paragraph 1.)

As Applicants believe the previously-presented arguments overcome the rejection based on Ellis, they are repeated here for full consideration. If the Patent Office maintains a rejection based on Ellis, Applicants respectfully request withdrawal of the finality of the pending office action, a substantive reply to Applicants' arguments, and an opportunity to respond to that reply.

Independent claim 1 requires, *inter alia*, partially polymerizing a mixture to provide a partially polymerized mixture exhibiting a degree of conversion of monomers to polymer of between 30 – 60 wt. % with respect to the initial mass of the monomers prior to polymerization. (See claim 1, element (ii).) Claim 1 also requires adding one or more free-radical radiation

polymerization initiators to this partially polymerized mixture to provide a radiation-curable precursor, applying the resulting radiation-curable precursor to a substrate, and further polymerizing the radiation-curable precursor. (See claim 1, elements (iii)-(v).)

Citing various passages, the Patent Office asserts that Ellis discloses each of the steps of claim 1 of the present application. Applicants respectfully submit that when these passages are read in their respective contexts, it is clear that Ellis fails to provide the description, teaching, or suggestion necessary to combine them to arrive at the method of claim 1. In addition, features recited in the steps described in Ellis further distinguish the method of the present disclosure from that described in Ellis.

For example, Ellis describes one step in a batch process that results in a polymer content of 30-80% by weight. (See, col. 17, line 46-51.) However, Ellis goes on to state that if the polymerization is stopped at this point, the unreacted monomer can be stripped from the reaction mixture or further polymerized in other equipment. (See col. 17, lines 52-54.)

These further polymerizations of Ellis are described at col. 18, line 11 - col. 19, line 22 as one or more essentially adiabatic reaction cycles performed as batch processes. In fact, the Patent Office cited a portion of this description (col. 18, lines 37-38) for the proposition that Ellis describes "adding additional initiator to the partially polymerized mixture." (See Office Action mailed March 17, 2006; ¶ 7.) However, reading the cited passage in its full context (see, col. 18, lines 20-56) at best, Ellis describes adding additional initiator in the context of additional batch reactions. Therefore, although Ellis may describe adding initiator to a partially polymerized mixture, the Patent Office has failed to show how Ellis describes, teaches, or suggests applying such a mixture to a substrate and further polymerizing it by subjecting it to actinic irradiation, as required by claim 1.

In addition, Applicants note that the Patent Office cited col. 19, lines 25-28 for the proposition that Ellis describes applying the mixture to a substrate. (See Office Action mailed March 17, 2006; ¶ 7.) However, Applicants respectfully submit that the Patent Office has failed to show how Ellis describes, teaches, or suggests the addition of one or more free-radical radiation polymerization initiators to the solutions that are applied to substrates. In addition, Ellis requires that the copolymers made for PSA be "dissolved in ethyl acetate 50% by weight of

polymer plus ethyl acetate" prior to coating them; therefore a significant amount of solvent is present. (See col. 19, lines 26-36.)

In summary, Applicants respectfully submit that, although isolated passages of Ellis may appear to describe elements similar to those required by claim 1, if read in context, these passages fail to describe, teach, or suggest the overall method of claim 1. For example, the Patent Office has failed to show how Ellis describes, teaches, or suggests adding one or more free-radical radiation polymerization initiators to a partially polymerized mixture having a degree of conversion of monomers to polymer of between 30 – 60 wt. % with respect to the initial mass of the monomers prior to polymerization to provide a radiation-curable precursor, applying this radiation-curable precursor to a substrate, and further polymerizing the radiation-curable precursor by subjecting it to actinic irradiation to provide a pressure-sensitive adhesive. (See, e.g., claim 1.) For at least these reasons, the rejection of claim 1 under 35 USC § 103(a) as being unpatentable over Ellis is unwarranted and should be withdrawn.

Claims 2-10 and 12-15 each add additional features to claim 1. Claim 1 is patentable for at least the reasons given above. Thus, claims 2-10 and 12-15 are likewise patentable.

Claim 20 adds additional features to claim 1. Claim 1 is patentable for at least the reasons given above. Thus, claim 20 is likewise patentable.

In view of the above, it is submitted that the application is in condition for allowance. Examination and reconsideration of the application, with allowance of all pending claims is requested.

Respectfully submitted,

August 17, 2007
Date

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